

ABSTRACT

A planar inverted-F antenna (PIFA) to facilitate communications within a plurality of frequency bands is disclosed. The top plate of the PIFA is placed at a
5 predetermined height above a ground plane and shorting pins are placed in contact between the top plate and the ground plane. The feed pin is placed a predetermined distance away from each of the shorting pins within the interior area of the top plate. The shorting pins provide the ability to
10 tune the PIFA to achieve either class-F or inverse class-F impedances over a wide range of frequencies. Also disclosed is an offset top loaded monopole (TLM) in which the feed pin connected to the top plate is offset from the centre of the top plate to provide a desired impedance.